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# **GSAW2004**

## **Plenary Sessions Summary**

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# Outline

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- **New at GSAW2004**
- **Repeated Themes**
- **Things to Think About**
- **Notable**
- **Quotable**



# New at GSAW2004

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- **Special announcement at GSAW!**
  - ❖ OMG Space Domain Task Force and CCSDS announced a joint agreement to collaborate in the space domain
- **Perspective of GSAW2004 presentations**
  - ❖ Technologies advocated at previous GSAWs are in experience reports this year
    - ☞ CCSDS standards
    - ☞ Middleware and messaging services
    - ☞ Remote data access
    - ☞ Architecting for change - composable, component-based architectures
    - ☞ Hierarchical/layered architectures
      - ☝ To permit unanticipated applications, lower layer of a system should support the widest possible variety of services and functions
    - ☞ XML, OMG XTCE



# Repeated Themes

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- **Interoperability, standards, modularity, systems of systems**
- **Web services, message-oriented middleware**
- **Dealing with legacy systems - incorporating them, interfacing with them, replacing them, re-architecting**
- **Open source, COTS, managing expectations**
- **Specifications change -> flexibility, reconfigurability, evolution, technology refresh**
- **Evolutionary acquisition/spiral developments**
- **Security, reliability**



# Things to Think About

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- **The guy on the ground is the gateway - satellites will be nodes**
- **End-to-end (E2E) - the objective is connecting the spacecraft and the user**
- **The integrator is king**
- **Reference architecture as a basis for mapping standards**
- **Common open architectures allow third party enhancements**
- **Reliability and support are worth inflexibility**
  - ❖ Flexible requirements vs. fixed requirements baselines
  - ❖ Need to prioritize requirements
- **APIs vs. protocols**



# Notable

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- Raging incrementalism and hyperexponential change
- Open sourcing
- Architecture police
- Smart components
- Satellite hotspots, routers in space, phone switch in the sky
- MMSOC, NOC, SOC, STOCC - and MCS
- SCA, TCA/TCO/TCM
- COTM, AISR, SISR, GIG-BE, WIN-T, JTRS, ORCA
- Death by PowerPoint



# Quotable

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- **Maybe if we can't afford it, it's not a requirement**
- **Incentivize quality, not just cost and schedule**
- **Don't keep reinventing the wheel - instead, build on software that comes close**
- **Don't do it in hardware if you can do it in software**
- **Need a centripetal force to prevent spiral development from spinning off**
- **XML is the hottest thing since comma-separated files**
- **Hubble was the only disaster that really turned around**
- **Missions come and missions go, but ground systems tend to stick around**
- **Real future lies in ability to transition post-R&D assets into operational use**

